REMARKS/ARGUMENTS

This Amendment and Response comprises the Applicant's reply to the USPTO Office Action dated March 9, 2006 in the matter of the present application. Claims 1-3 are currently pending in the present application, and the Examiner rejected Claims 1-3 in the above-noted Office Action.

In Sections 3 and 4 of the Office Action, the Examiner rejected Claim 2 under 35 U.S.C. §112, second paragraph, as being indefinite. In addition, in Sections 5 and 6 of the Office Action, the Examiner rejected Claim 2 under 35 U.S.C. §102(b) as anticipated by U.S. Pat. No. 5,556,764 to Sizto et al. ("Sizto"). Finally, in Sections 7 and 8 of the Office Action, the Examiner rejected Claims 1 and 3 under 35 U.S.C. §103(a) as unpatentable over Sizto in view of U.S. Pat. No. 3,999,047 to Green ("Green"). The Applicant has amended Claims 1 and 2, and respectfully traverses the Examiner's rejections as follows.

It is well recognized that claims are anticipated if, and only if, each and every element, as set forth in the claim is found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the...claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). See MPEP §2131. In addition, to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), the Examiner must show that 1) the references teach all of the elements of the claimed invention, 2) the references contain some teaching, suggestion or motivation to combine the references, and 3) the references suggest a reasonable expectation of success. See MPEP §2142. See also In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); In re Kotzab, 217 F.3d 1365, 55 USPQ2d 1313 (Fed. Cir. 2000).

Claim 1

Step (e) of Claim 1 of the present application states "independently establishing threshold values for the detection of said particles for each set of enhanced pixel values". As noted by the Examiner, this limitation is not disclosed in Sizto. In addition, the Applicant respectfully asserts

that, contrary to the Examiner's position, Green also fails to disclose this limitation. The Applicant's claimed method addresses that the **position** of each potential cell event has its own threshold based on the surrounding noise characteristics in each particular spectral image. Thus, not only is the threshold determined by the specific spectral channel, but by each position as well. The Applicant notes that Green has a static threshold for each spectral channel. More particularly, Green's threshold is not dynamic during a scan; that is, Green's whole procedure is serial since Green does not store a whole spectral image. As a result, Green must establish a fixed threshold in each channel. In contrast, the Applicant's threshold is dynamic in the sense that the Applicant analyzes the image noise characteristics along the length of the image to establish a threshold that is position-dependent. The concept of a "dynamic" threshold is embodied by the Applicant's use of the word "independently" in step (e).

Considering the Examiner's citations associated with Green for step (e) of Claim 1 of the present application, the Examiner referenced Green at column 5, lines 36-37, wherein Green states "[i]n practice, histogramming has proved to be a feasible method for establishing thresholds." In addition, the Examiner referenced Green at column 9, lines 38-44, wherein Green states "[l]ooking now to FIG. 4, the three channel data A', B' and C' is applied as an input to a histogrammer 40 and to corresponding signal level comparators 42a, 42b, and 42c. During the first pass of scanner 12 through the field 14, the histogrammer 40 collects the histographic information within the field for each signal, i.e., the density distribution of the points within field 14. The three histograms are thresholded and...." The Applicant respectfully notes that Green first assumes a complete scan into each spectral channel. No cell event recognition takes place in this initial scan. Furthermore, during this initial scan, the intensity information into each spectral channel is histogrammed and a fixed threshold is determined for each spectral channel. Then, another scan occurs whereby the serial intensity information in each spectral channel is compared to the fixed thresholds determined by the prior scan in each spectral channel. Thus, Green's method, while independently thresholding each spectral channel, does **not** independently threshold each potential cell event as claimed by the Applicant in the present application. For the

foregoing reason alone, Sizto and/or Green, either alone or in combination fail to anticipate or render obvious Claim 1.

With regard to step (f) of Claim 1, this step claims "independently identifying, in each set of enhanced pixel values, groups of above-threshold pixels located in patterns that are diagnostic of said particles". In considering step (f), and by way of example, a single isolated, above-threshold pixel, would be thrown away if it didn't have a more ideal, larger "blob" at the same position in another spectral channel. In considering Green, the Examiner has cited Green at column 5, line 45 through column 6, line 6, wherein, in part, it states "[t]hresholds are established to separate the peaks of the histograms". The Applicant respectfully notes that this reference has to do with establishing a global threshold based on Green's "initial" scan, and this is different than the wording of step (f).

With regard to step (g) of Claim 1, the wording at the end of this step has been amended by the Applicant to clarify the step. Step (g) now reads "independently identifying, for each group of above-threshold pixels located in a diagnostic pattern in a particular set of enhanced pixel values, the corresponding below-threshold or at-threshold pixels in the remaining sets of enhanced pixels in the remaining spectral channels". Support for the amended wording is provided in the specification of the present application at page 25, lines 10-16. The inclusion of step (g) distinguishes the Applicant's claimed invention from Green and Sizto because the Applicant is claiming thresholding potential cell events in each spectral channel. That is, since thresholding is conducted in each spectral channel **independently** (and indeed, in each position in the spectral channel image), use of the method allows for evaluating whether an event is a real event if the threshold is reached in **any** one or more of the spectral channels. If, for example, channel 0, had a "blob" that exceeded threshold (and met the other criteria such as size), and that position in the other spectral channels did not have a "blob" that exceeded threshold, the Applicant's claim provides for still evaluating the size, intensity, correlation, etc., in the below-threshold images to eventually classify the cell event (thus, the Applicant's wording "*independently identifying*"). It is respectfully noted to the Examiner that there is no similarity whatsoever to the Green method. In fact, the Green method is serial by nature. For example,

Green at column 7, line 25 states "[t]he preferred embodiment does not use storage of any of the stream of digitized image points in a computer memory". Therefore, it is impossible for Green to evaluate the size, intensity (i.e., those "pixels located in a diagnostic pattern") for the below-thresholded intensities in the remaining spectral channels. In fact, all of Green's classification occurs using a binary classification scheme. That is, if a cell event was found in channel 0, but not at the same position in channels 1 and 2, then Green's Color Logic circuit would have three binary points (1,0,0) which Green would classify the cell event based on an internal table (for instance (1,0,0) might indicate a white blood cell). For Green, there is no evaluation of cell event characteristics beyond the simple classification. That is, no intensities, size, correlation, etc., or other information are captured for each cell event (and this information is especially not captured in the channels for which the event was not found). The Examiner references Green at column 9, lines 45-63 wherein Green states, in part, "[t]he three histograms are thresholded and during the second scan of the field the thresholded outputs Ta, Tb, and Tc are applied to the output lines 44a, 44b, and 44c . . . ." In this section of text, Green is referring to Green's initial scan which establishes the thresholds used against each spectral channel, as well as to the subsequent build up of 3x3 binary representations of potential cell events. Accordingly, this section of text has nothing to do with the Applicant's step (g) because step (g) is directed to the ability to "go back" and evaluate the "diagnostic patterns" (cell characteristics) in those spectral channels where no event was "found" above threshold. For the foregoing reason alone, Sizto and/or Green, either alone or in combination fail to anticipate or render obvious Claim 1.

The above discussion provides explanation of how at least some of the limitations of Claim 1 are distinguishable over the cited prior art of Sizto and Green. Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claim 1.

Claim 2

As noted above, the Examiner rejected Claim 2 under 35 U.S.C. §112, second paragraph, as being indefinite, and further rejected Claim 2 under 35 U.S.C. §102(b) as anticipated by Sizto. It is noted to the Examiner's attention that the Applicant has amended steps (d)-(f) of Claim 2 by

deleting the word "source" before "pixel" and inserting the word "composite" in its place, where appropriate. Support for the amended wording is provided in the specification of the present application at page 27, lines 9-15, and Figure 7. These amendments address the Examiner's §112, second paragraph rejection. In addition, the Applicant respectfully disagrees with the Examiner's assumed wording for examination of steps (d) and (e) of Claim 2, because the Applicant is calculating the threshold for particle detection "independently in each set," as claimed in amended Claim 2. This wording reflects that the claimed thresholding is undertaken in each cell event independently. That is, each cell event "sees" a different threshold based on its surrounding noise, which was not anticipated by Sizto, who establishes a fixed threshold over the composite image. Thus, Sitzo does not calculate a background value as a function of background, but rather, calculates a background (and thus threshold) as fixed quantities for the whole channel. Having distinguished the amended claim wording for Claim 2 over the subject matter disclosed in Sitzo, the Examiner is respectfully requested to withdraw both the §102(b) and §112 rejections of Claim 2.

Claim 3

With regard to Claim 3, the Applicant notes that steps (c) and (d) are novel based on the discussion provided above for Claim 1. In sum, Sizto and/or Green fail to disclose the Applicant's claimed method of thresholding. That is, neither Sizto or Green do thresholding that is **independent** for each cell event in each spectral channel. Green only thresholds each spectral channel but not each "event" independently. Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claim 3.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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